COLUMNEA RANGELII (GESNERIACEAE), A NEW SPECIES FROM THE SERRANÍA DE LOS PARAGUAS IN THE COLOMBIAN ANDES

Columnea rangelii (Gesneriaceae), una especie nueva de la Serranía de los Paraguas en los Andes colombianos

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ABSTRACT
A new species of *Columnea* belonging to the section *Collandra* (Gesneriaceae) from La Serranía de los Paraguas in the Department of Valle del Cauca (Cordillera Occidental), Colombia, is described and illustrated.

Key words. *Collandra, Columnea*, Colombia, Flora of Colombia, Gesneriaceae, Serranía de Los Paraguas.

RESUMEN
Se describe e ilustra una especie nueva de *Columnea* perteneciente a la sección *Collandra* (Gesneriaceae). La nueva especie se encontró en La Serranía de los Paraguas, en el departamento del Valle del Cauca (Cordillera Occidental), Colombia.

Palabras clave. *Collandra, Columnea*, Colombia, Flora de Colombia, Gesneriaceae, Serranía de Los Paraguas.

The Serranía de Los Paraguas is considered a strategic ecosystem with global priority for the conservation of biodiversity. It is part of the corridor system of mountains connecting Parque Nacional Natural Orquídeas - Farallones de Citará - Cerro de Caramantá - Cuchilla del San Juan - Macizo del Tatamá - Serranía de los Paraguas, all of which are part of the larger biogeographical Choco region. The Natural Reserve of Cerro El Inglés is a place with the highest records of endemism and biodiversity for the Serranía de los Paraguas, especially in the flowering plant families: Orchidaceae, Rubiaceae, Ericaceae, Melastomataceae, Araceae and Gesneriaceae (Silverstone-Sopkin & Ramos-Pérez 1995, Corporación Serraniagua (informe 2006, ined.). The reserve with 355 hectares and with a maximum elevation of 2400 m, harbors the montane wet forest ecosystem from which new species have been described for the flora of Colombia (Silverstone-Sopkin & Ramos-Pérez 1995, Clavijo & Clark 2010).

It is urgent to describe and understand the biodiversity patterns of the "hot spot" regions to implement effective plans to conserve the dazzling number of species present in those areas. In this paper we make a small contribution to this task reporting and describing a new species of *Columnea* belonging to section *Collandra*. The new

species is assigned to section *Collandra* on the basis of the presence of two dorsal nectary glands and for having a vegetative shoot with the "fern-frond" physiognomy (Wiehler 1983), a feature that has been relevant to recognize species of this section (Kvist & Skog 1993). Additionally, the vegetative traits of the new species are identical to those of *C. gigantifolia* described by Kvist & Skog (1993) within section *Collandra.*

***Columnea rangelii* M. Amaya & O. H. Marín sp. nov.** Figures 1 and 2.

TYPE: COLOMBIA: Valle del Cauca: municipio El Cairo, vereda El Brillante, natural reserve Cerro del Inglés, 2250–2350 m, 21 Mar. 2011, *O-H. Marín-Gómez & D. A. Gómez-Hoyos. 5* (Holotype: COL).

Columnea rangelii differs from *C. gigantifolia* by having corollas with limb subactinomorphic.

Suffrutescent climber 0.5-2 m high. Stem subterete, 0.5-1.3 cm, green-brown, scarcely pilose; internodes 1-2.5 cm. **Leaves** opposite, strongly anisophyllous in a pair, coriaceous; larger leaf sessile; blade slightly asymmetrical, lorate, 35-58 X 6-8.5 cm, base oblique, apex caudate, margin subentire, adaxially green, glabrous, abaxially red-purple, sparsely pilose on the blade, densely sericeous on the main vein, 11-15 veins on the larger side of the blade; smaller leaf sessile, narrow oblong, 2-2.5 X 0.5-0.6 cm, base slightly oblique, apex attenuate, margin subentire, adaxially green, glabrous, abaxially red-purple, sericeous on the main veins. **Inflorescence** fasciculate, 3-5 flowers on the larger leaf axil; one external bract, lanceolate, 4.2-7 X 1.1-2.5 cm, adaxially green, sparsely pilose, abaxially mostly purple, tomentose, margin serrulate. **Flower** pedicellate, pedicel 1.6-2.5 cm, sericeous (8-10 celled trichomes), with prominent glands along its length. **Calyx** white or brown, sepals free, subequal, lanceolate to narrow elliptic, 1.8-2.9 X 0.4-0.9 cm, adaxially sericeous (10-14 celled trichomes), abaxially densely sericeous (10-14 celled trichomes), margin serrate. **Corolla** yellow, tube slightly curved dorsally, 2-5 cm long, basally 0.5 cm wide, at the middle 1.2 cm wide, before limb 1.3 cm wide, limb open 2-2.5 cm wide; base slightly saccate 0.5 X 1 cm; limb subactinomorphic, lobes patent, rounded to obtuse, 0.4-1.1 X 0.5-0.7 cm; corolla exterior surface glandular (7-12 celled trichomes and a glandular head), interior surface mostly glabrous, basally pilose. **Androecium** of 4 stamens, filament 2.4 cm, pilose, basally connate by 0.5 cm of their length forming a staminal blade, anther sagittate 3 x 4 mm, connective sagittate ca. 2.5 X 3 mm. **Gynoecium** with the ovary cylindrical, 7 X 1.5 mm, canaliculate, densely sericeous; style 3.5-4.5 cm long, scabrous and glandular (unicellular trichomes); stigma bilobulate. **Nectary** of two connate, bidentate dorsal glands, 1.5 X 1 mm each. **Fruit** not seen. **Seeds** not seen.

Etymology. The species is named after Jesús Orlando Rangel Churio, to honor this Colombian scientist who has contributed to a great extent to the advance and understanding of the biological diversity in Colombia.

Phenology: Flowers have been recorded in the specimens collected in March and August.

Distribution: Colombia (Valle del Cauca, Chocó), 2250-2390 m alt.

Representative specimens: COLOMBIA. **Chocó**: municipio San José del Palmar, 2390 m, Aug. 23, 1988, *P. A. Silverstone-Sopkin et al. 4694* (CUVC).

Distinctive features: *Columnea rangelii* has a robust vegetative shoot with the larger leaf in a pair, sessile (up to 58 X 8.5 cm), completely red-purple on the abaxial side. The inflorescences are congested apically by the shortening of the internodes, with several flowers open at a time; the corollas of these

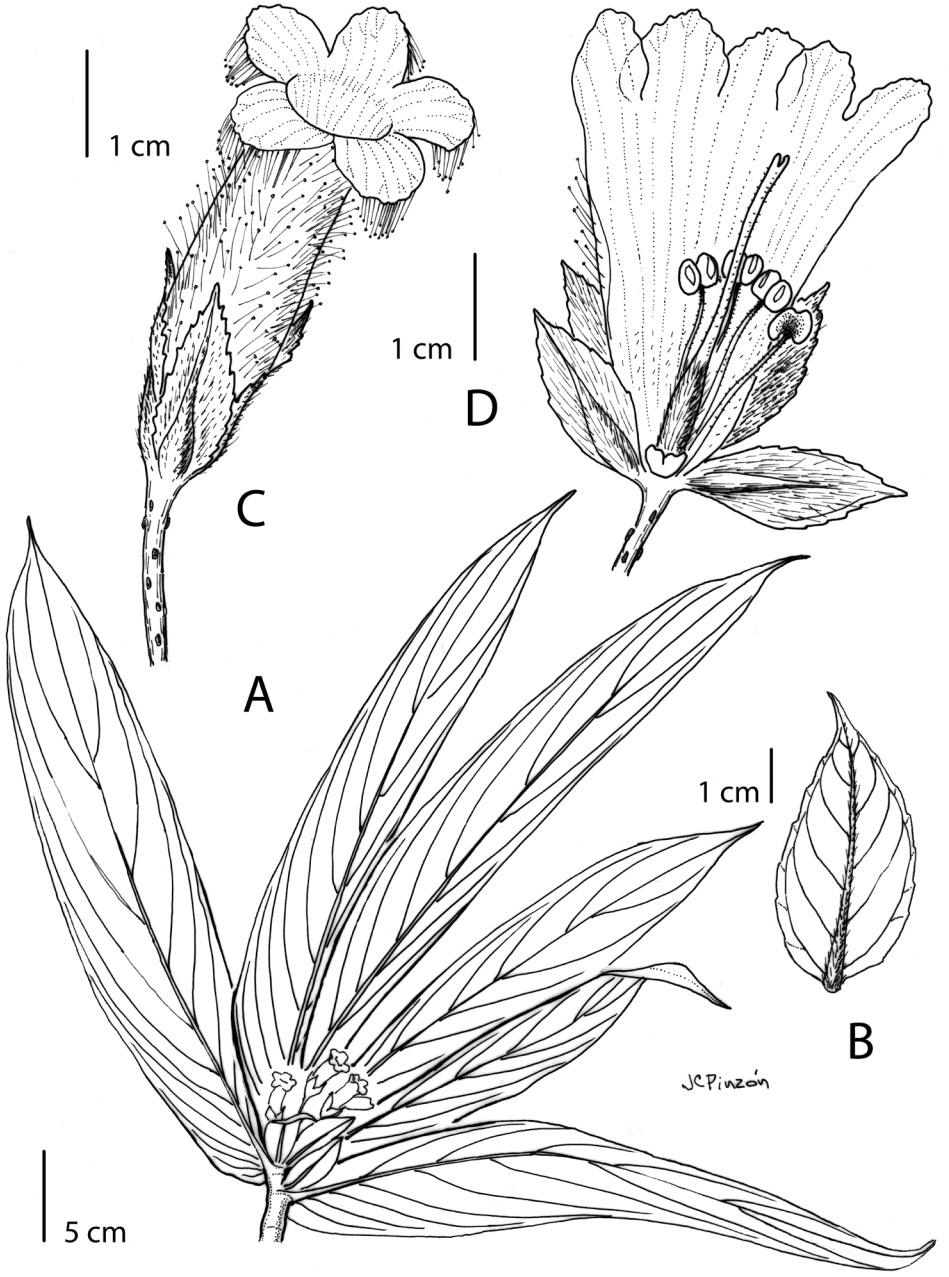

Figure 1. *Columnea rangelii* M. Amaya & O. H. Marín **A**. Habit. **B**. External bract. **C**. flower, conspicuous glands along the pedicel, corolla slightly oblique to the calyx, glandular trichomes outside, limb subactinomorphic. **D**. Flower dissected to show free sepals, corolla lobes imbricate, the androecium showing the inmature anthers, the ovary sericeous, the style glandular along their length, stigma bilobulate; the nectary of two connate bidentate glands.

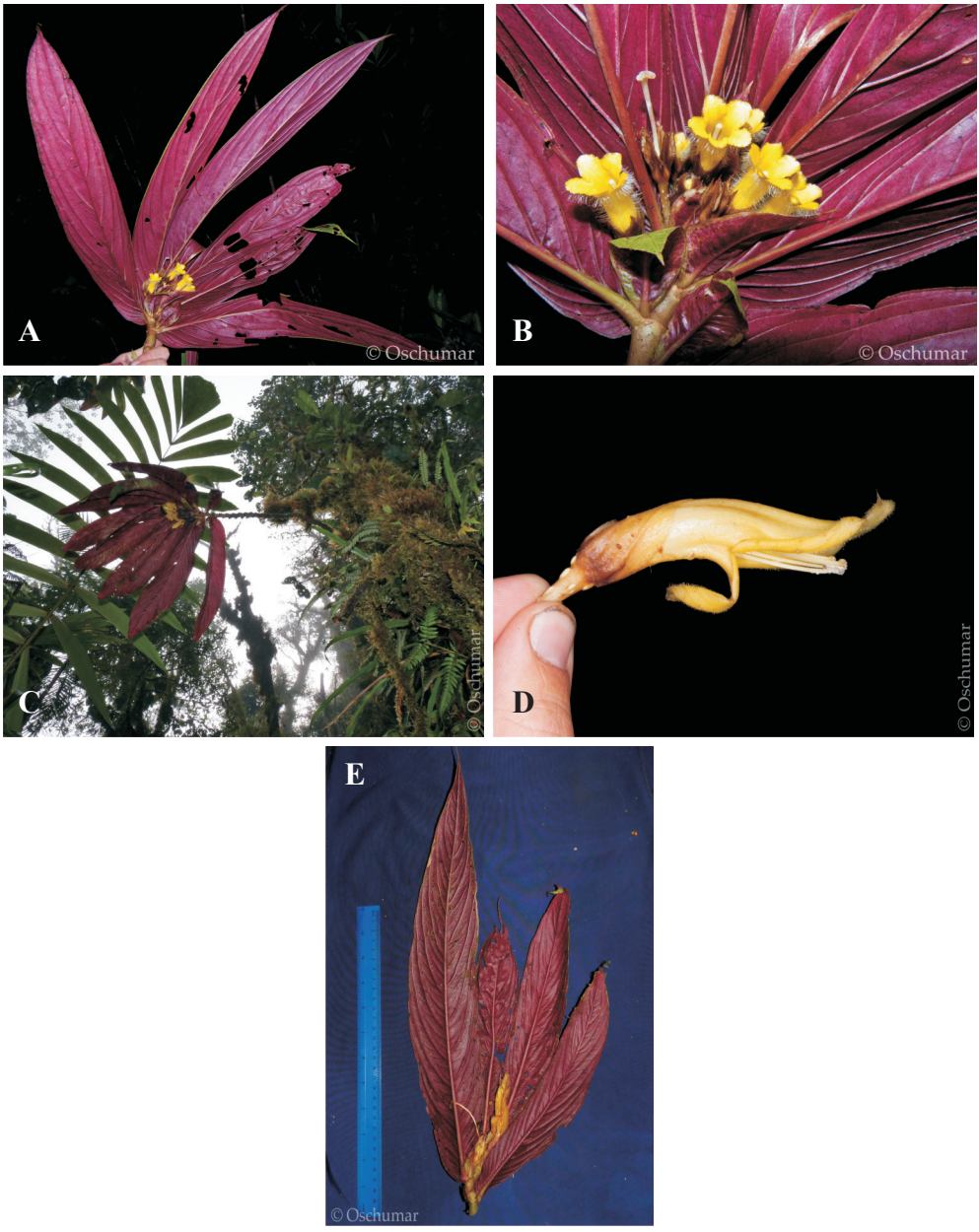

Figure 2. *Columnea rangelii* M. Amaya & O. H. Marín and *C. gigantifolia* L. P. Kvist & L. E. Skog. **A**. Dorsiventral shoot of *C. rangelii*. **B**. Inflorescences of *C. rangelii* crowded on the ventral side of the shoot: numerous flowers open at a time; the big bracts cover the base of the flowers and the corolla is tubular slightly infundibuliform with limb subactinomorphic. **C**. Dorsiventral shoot of *C. gigantifolia*. **D**. flower of *C. gigantifolia* showing the prominent white glands on the pedicel, the corolla is tubular with limb bilabiate. **E**. Detail of *C. gigantifolia* shoot, the inflorescences are located on the ventral side of the shoot, the external bract can reach a size up to 7 X 3 cm covering the base of the flowers.

flowers show an ample range in length (2-5 cm) suggesting different stages of the floral phenology. The flower of *C. rangelii* is unique within section *Collandra* by having a corolla tube slightly recurvate with an ample subactinomorphic limb. This species is very similar to *C. gigantifolia,* and they can be distinguished by floral traits, where the difference is evident (Table 1, Fig. 2).

Columnea rangelii was found at night while sampling amphibians at the border of a ravine; however this species could not be found again in spite of an effort of 120 hours invested searching for it. In the same vein, the rarity of *C. rangelii* is confirmed from the study of herbaria specimens of *Columnea* from different herbaria, where only one of 1020 exsiccate corresponded to *C. rangelii* (paratype). This is suggestive that the species is rare and endemic to the Serranía de los Paraguas.

Columnea rangelii shares its habitat at Cerro del Inglés with: *C. gigantifolia*, a locally abundant species, *C. archidonae, C. dictyophilla*, *C. dimidiata, C. fuschihirta*, *C. filipes, C. paraguensis*, *C. pedunculata*, *C. suffruticosa*, *C. tenella*, *Columnea* sp nov.1, and *Columnea* sp nov. 2. Although *C. archidonae* is currently under the synonymy of *C. ericae*, the name is considered as a distinct taxon (Amaya-Márquez *et al.* in prep.).

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Table 1. Comparison of morphological traits between *C. rangelii* and *C. gigantifolia*

Character	*C. rangelii* M. Amaya & O. H. Marín	*C. gigantifolia* L. P. Kvist & L. E. Skog
Size of the larger leaf	35-58 X 6-8.5 cm	25-50 X 5.5-15.5 cm
Number of veins on the larger leaf	11-15	17 (12-20)
Pedicel length	1.6-2.5 cm	0.4-1.6 cm
Calyx color	White/Brown	Purple (red)/Yellow/Green
Sepal adaxially	Sericeous (10-14 celled trichomes)	Glabrescent, sparsely glandular (unicellular punctuate glands)
Corolla shape	Tubular, slightly dorsally recurvate limb sub-actinomorphic	Tubular, dorsally recurvate, limb bilabiate. Upper lip: two dorsal connate lobes plus the two lateral lobes. Lower lip: a ventral lobe
Corolla length	2-5 cm	4-7 cm
Corolla outside	Glandular (7-12 celled trichomes and a glandular head)	Sericeous (7-10 celled trichomes)
Corolla inside	Mostly glabrous, lobes glabrous, basally pilose	Glandular along the tube and on the lobes (unicellular glandular trichomes), on the ventral lobe (3 celled trichomes and a glandular head)
Stamen filament length	2.4 cm	3.8-5 cm
Anther shape	Sagittate 3 X 4 mm	Subquadrate 2.5 X 2.5 mm
Gynoecium	Cylindrical, 7 X 1 mm, canaliculate, densely sericeous	Conoidal, 7 X 2 mm, canalicualted sericeous along the ribs or only apically
Style length	3.5-4.5 cm	3.2-5.8 cm
Nectary	Two connate bidentate glands, 1.5 X 1 mm	One tridentate gland 4 X 2 mm
Distribution	**Colombia**: Valle del Cauca, Chocó, Cordillera Occidental, 2250-2390 m	**Colombia**: Nariño, Valle del Cauca, Risaralda, Cordillera Occidental, 490-2350 m. **Ecuador**: Carchi, 1900 m.

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